Algunos efectos cognitivos y subjetivos de estar conectados a Internet y poder realizar búsquedas

Psic. Daniel Guevel -U.N.R.-

III Congreso Internacional de la AAHD: Humanidades Digitales. La Cultura de los Datos.

Memoria transactiva

Cuando los otros se convierten en repositorios de información

“sistemas transactivos de memoria”.

la **información es distribuída** por todo el grupo de modo que tales individuos son responsables por conocer un área específica de conocimiento experto

Los sistemas de memoria transactiva consisten en dos componentes:

memoria **interna** ¿Qué es lo que sé?
memoria **externa** ¿Quién sabe qué?

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Supporting Online Material
www.sciencemag.org/cgi/content/full/333/6043/773/DC1
Materials and Methods
SOM Text
Figs. S1 to S7
Tables S1 to S5
References (*24*–*35*)

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Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips

Betsy Sparrow,[1]* Jenny Liu,[2] Daniel M. Wegner[3]

The advent of the Internet, with sophisticated algorithmic search engines, has made accessing information as easy as lifting a finger. No longer do we have to make costly efforts to find the things we want. We can "Google" the old classmate, find articles online, or look up the actor who was on the tip of our tongue. The results of four studies suggest that when faced with difficult questions, people are primed to think about computers and that when people expect to have future access to information, they have lower rates of recall of the information itself and enhanced recall instead for where to access it. The Internet has become a primary form of external or transactive memory, where information is stored collectively outside ourselves.

In a development that would have seemed extraordinary just over a decade ago, many of us have constant access to information. If we need to find out the score of a ball game, learn how to perform a complicated statistical test, or simply remember the name of the actress in the classic movie we are viewing, we need only turn to our laptops, tablets, or smartphones and we can find the answers immediately. It has become so commonplace to look up the answer to any question the moment it occurs that it can feel like going through withdrawal when we can't find out something immediately. We are seldom offline unless by choice, and it is hard to remember how we found information before the Internet became a ubiquitous presence in our lives. The Internet, with its search engines such as Google and databases such as IMDB and the information stored there, has become an external memory source that we can access at any time.

Storing information externally is nothing particularly novel, even before the advent of computers. In any long-term relationship, a team work environment, or other ongoing group, people typically develop a group or transactive memory (*1*), a combination of memory stores held directly by individuals and the memory stores they can access because they know someone who knows that information. Like linked computers that can address each other's memories, people in dyads or groups form transactive memory systems (*2*, *3*). The present research explores whether having online access to search engines, databases, and the like, has become a primary transactive memory source in itself. We investigate whether the Internet has become an external memory system that is primed by the need to acquire information. If asked the question whether there are any countries with only one color in their flag, for example, do we think about flags or immediately think to go online to find out? Our research then tested whether, once information has been accessed, our internal encoding is increased for where the information is to be found rather than for the information itself.

In experiment 1, participants were tested in two within-subject conditions (*4*). Participants answered either easy or hard yes/no trivia questions in two blocks. Each block was followed by a modified Stroop task (a color-naming task with words presented in either blue or red) to test reaction times to matched computer and noncomputer terms (including general and brand names for both word groups). People who have been disposed to think about a certain topic typically show slowed reaction times (RTs) for naming the color of the word when the word itself is of interest and is more accessible, because the word captures attention and interferes with the fastest possible color naming.

Paired within-subject *t* tests were conducted on color-naming reaction times to computer and general words after the easy and difficult question blocks. Confirming our hypothesis, computer words were more accessible [color-naming RT mean (*M*) = 712 ms, SD = 413 ms] than general words (*M* = 591 ms, SD = 204 ms) after

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Supernormal: How the Internet Is Changing Our Memories and Our Minds

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University of Colorado, Boulder, Colorado

We are creatures of flesh and blood, living in a world of bits and bytes—a world shaped by the Internet. With the simple touch of a button or swipe of a finger, we can instantaneously access vast amounts of information (e.g., Ashton, 2009). A few more keystrokes, and we can interact with friends 10 time zones away (e.g., Thurlow, Lengel, & Tomic, 2004). Just a few more, and we may complete the transition to a digital life, transferring our identities from our physical bodies to online avatars (e.g., Bessière, Seay, & Kiesler, 2007). Perhaps because of its pervasive influence, it's often difficult to imagine a world without the Internet. We know there was a time when encyclopedias represented the pinnacle of information storage and communicating with faraway friends required a trip to the post office (or at least to the mailbox), but such a time feels far removed from the present moment.

However, as Sparrow and Chatman (this issue) point out, the current era of digitally mediated information, communication, and exploration is a new one, a mere "blip on the timescale of human evolution" (p. 273). The Internet first made its way from private laboratories to the public sphere less than 20 years ago (Leiner et al., 2012), and many definitive elements of the Internet are newer still (e.g., Google, founded in 1998; Wikipedia, founded in 2001). For millions of years of evolution (e.g., Tattersall, 2001), "social networks" referred not to thousands of Facebook friends but to small groups of daily interaction partners (Dunbar, 1993) and information search consisted not of typing keywords into Google but of seeking out personally known experts (Wegner, 1995). Our basic cognitive architecture developed in this environment—one far removed from the present Internet Age—and most likely has not changed in the last 20 years (e.g., Bowlby, 1969; Tooby & Cosmides, 1990).

When old cognitive tendencies and new technologies meet—when the world of flesh and blood collides with the world of bits and bytes—the Internet may act as a "supernormal stimulus," hijacking preexisting cognitive tendencies and creating novel outcomes. Supernormal stimuli meet or exceed long-enforced selection criteria, but are generally foreign to the environments in which these criteria developed; as a result, these new stimuli often elicit greater responses than any naturally occurring stimuli. The Internet may produce supernormal stimulus effects in many domains; for example, relatively unidirectional Internet-based c
cation such as blogging and tweeting may
on the intrinsic rewards associated with so
(Tamir & Mitchell, 2012) while protecting
from costs associated with social anxiety
& Kowalski, 1997), and experimenting
identities online (e.g., Yee, 2006) may al
fulfill intrapsychic needs (such as the n
McClelland, 1961) without incurring
costs (e.g., Brewer, 1991).

Internet-related supernormal stimu
be particularly powerful in the domai
search on transactive memory indic
information is distributed between
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Giuliano, & Hertel, 1985). People
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Journal of Experimental Psychology: General

0096-3445/15/$12.00 http://dx.doi.org/10.1037/xge0000070

Searching for Explanations: How the Internet Inflates Estimates of Internal Knowledge

Matthew Fisher, Mariel K. Goddu, and Frank C. Keil
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As the Internet has become a nearly ubiquitous resource for acquiring knowledge about the world, questions have arisen about its potential effects on cognition. Here we show that searching the Internet for explanatory knowledge creates an illusion whereby people mistake access to information for their own personal understanding of the information. Evidence from 9 experiments shows that searching for information online leads to an increase in self-assessed knowledge as people mistakenly think they have more knowledge "in the head," even seeing their own brains as more active as depicted by functional MRI (fMRI) images.

Keywords: transactive memory, explanation, knowledge

Just as a walking stick or a baseball glove can supplement the functioning of the body, cognitive tools, computational instruments, and external information sources can supplement the functioning of the mind. The mind can often increase efficiency and power by utilizing outside sources, for tasks like memory, it can rely on cognitive prostheses, such as a diary or a photo album. These external archives can become necessary components of an interdependent memory system (Harris, 1978).

The mind can also become dependent on other minds. When others serve as externalized repositories of information, transactive memory systems can emerge (Wegner, 1987). In these systems, information is distributed across a group such that individuals are responsible for knowing a specified area of expertise. For instance, one person could be responsible for knowing where to find food while another knows how to prepare it. Members of the systems must also track where the rest of the knowledge is stored. Thus, these systems consist of two key elements: internal memory ("What do I know?") and external memory ("Who knows what?") (Hollingshead, 1998, 2001). By reducing redundancy, transactive memory systems work to encode, store, and retrieve information more effectively than could be done by any individual.

Transactive memory systems explain how intimate couples (Wegner, Giuliano, & Hertel, 1985) and familiar groups (Kozlowski & Ilgen, 2006; Peltokorpi, 2008) divide cognitive labor and perform efficiently. These systems can form even with complete strangers, as stereotypes can serve as "defaults" or proxies for another person's expertise (Wegner, Erber, & Raymond, 1991). Better performing memory systems can emerge through communication strategies that allocate domains of knowledge to individuals in the network. Increased group coordination leads to better problem solving than in comparable groups of strangers (Hollingshead, 1998; Littlepage, Robison, & Reddington, 1997). This communication can take place through explicit negotiation (e.g., "you remember the first 3 digits, I will remember the last 4"), but often occurs implicitly. As a relationship develops, members of the systems with higher relative self-disclosed expertise will become responsible for knowledge in that domain. Similarly, an individual with access to unique information will become responsible for that information (Wegner, 1987). When groups have not developed these dependencies, decision-making in real-world interactions can be worse than individuals' decisions (Hill, 1982).

Transactive memory may have origins in children's early emerging abilities to navigate the social world and access knowledge in others' minds. External sources of knowledge, especially parents, teachers, and other social partners, play an integral role in children's conceptual development (Gelman, 2009). Information learned from others also exerts a powerful influence over children's notions of what to accept as true—for example, the existence of germs or Santa Claus (Harris, Pasquini, Duke, Asscher, & Pons, 2006). From an early age, children show an emerging but initially limited ability to navigate the terrain of distributed knowledge (Keil, Stein, Webb, Billings, & Rozenblit, 2008). With age they become aware of the breadth, depth, and epistemic limitations inherent to particular kinds of expertise (Danovitch & Keil, 2004). These types of early emerging sensitivities to the content and limitations of other minds may underlie adult transactive memory. A growing body of theoretical and empirical work suggests that transactive memory systems can be technological as well as social. Though these systems are typically thought to be composed of human minds, our reliance on technology, like the Internet, may form a system bearing many similarities to knowledge dependencies in the social world. The Internet is the largest repository of human knowledge and makes vast amounts of interconnected information easily available to human minds. People quickly be-

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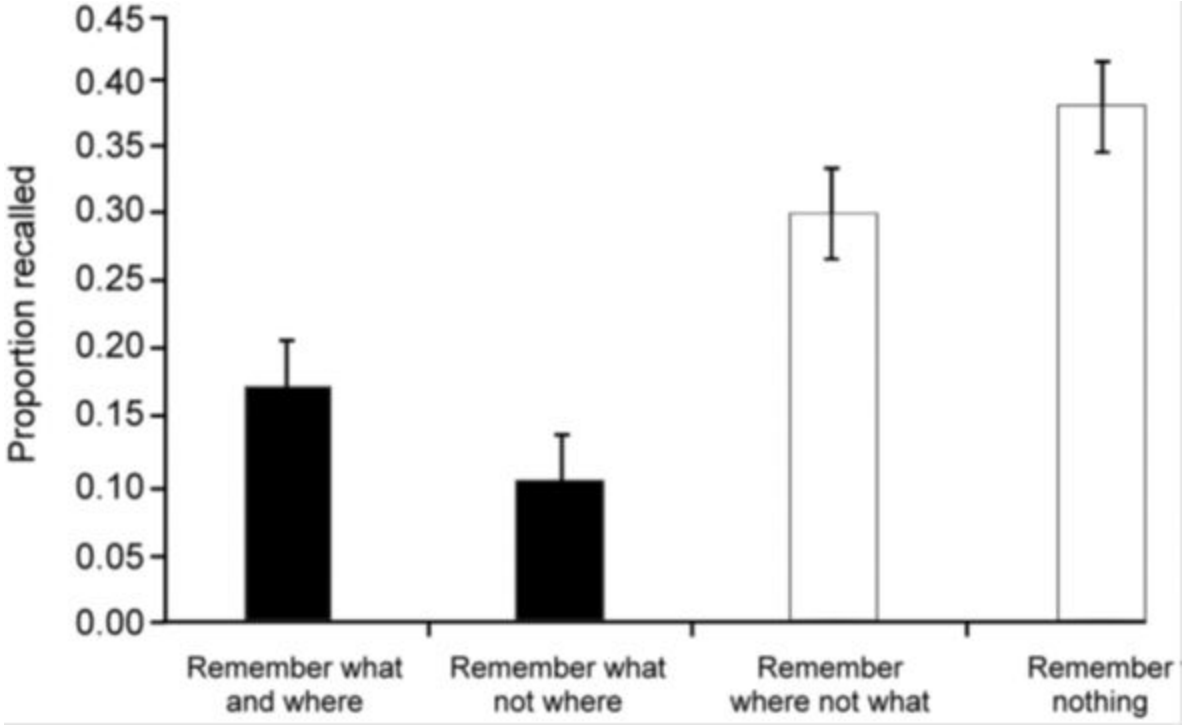
Correspondence concerning this article should be addressed to Matthew Fisher, Yale University, 2 Hillhouse Avenue, New Haven, CT 06520-8205. E-mail: matthew.fisher@yale.edu

- Poder hacer búsquedas y tener a nuestra disposición **archivos** tiene un efecto en nuestra **memoria**

- Internet es un **estímulo supra normal**

- Poder usar buscadores **amplifica la estimación de nuestro conocimiento interno**

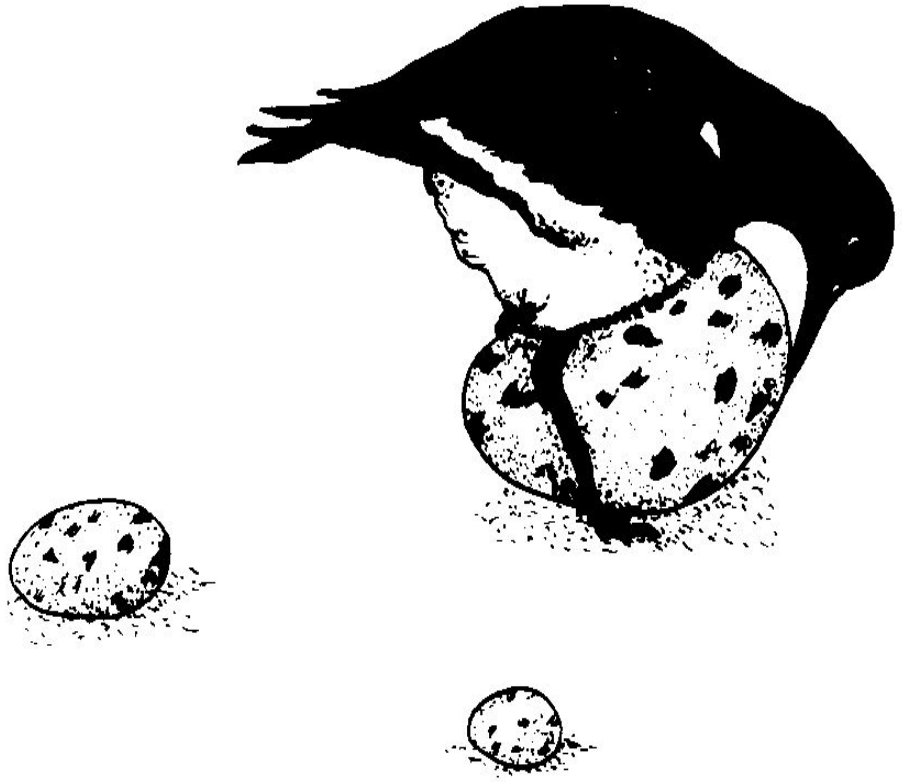


Análisis si/entonces de memoria para
“qué información es” y
“dónde encontrarla”.

Recordamos más aquello que sabemos no se va a arhivar

Creemos que sabemos más porque consideramos propia la memoria de los sistemas transactivos

Buscar en Internet puede llevar a la gente a **confundir la información que está disponible *online* con el conocimiento que posee en su cabeza**, como lo demostró Matthew Fisher



Internet como un “estímulo supernormal”

Según Fisher aunque Internet carezca de la agencia de los compañeros de memoria transactiva humanos, posee muchas de sus características. Incluso se la ha llamado como un **“estímulo supernormal” al reemplazar el conocimiento interno por uno externo que todo lo sabe**.

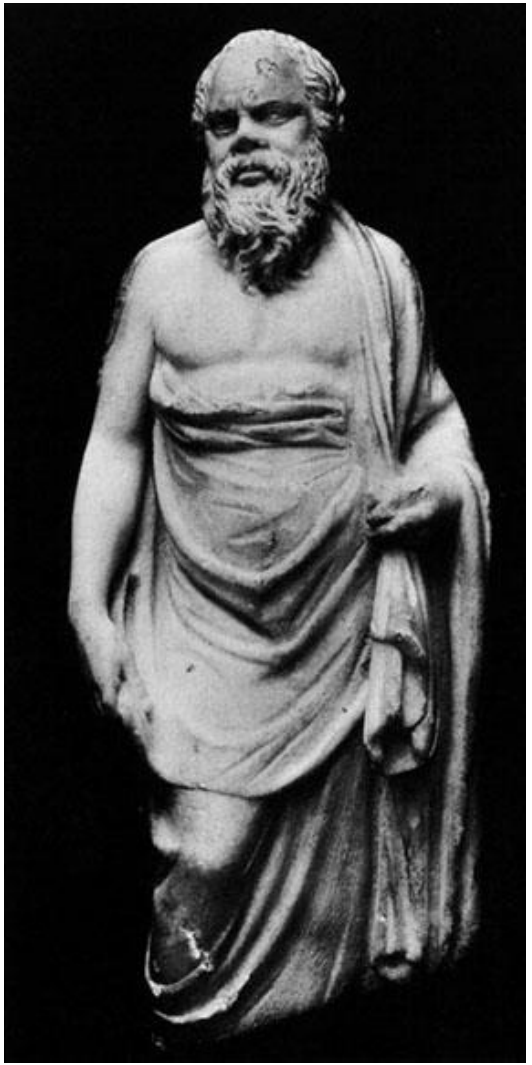
Un pájato es atraído por un huevo anormalmente grande mientras ignora los de tamaño real

Sócrates discutiendo la **memoria y la escritura** en el Fedro de Platón en el **370 AC**.

"Aquellos que la adquieran (escritura) dejarán de ejercitar su memoria y se volverán olvidadizos, **dependerán de la escritura para traer cosas a su recuerdo** mediante signos externos en vez de sus propios recursos internos"

Vaughan Bell: “Don’t Touch That Dial!”
Una historia del **temor** que despertaron los medios tecnológicos desde la imprenta a Facebook

https://slate.com/technology/2010/02/a-history-of-media-technology-scares-from-the-printing-press-to-facebook.html



Ingeniosa máquina de leer, procedente de la edición de 1588 de Diverse et Artificiose Machine.

Manguel, A. (2005). Una historia de la lectura. Emece.

https://www.loc.gov/item/65058982/

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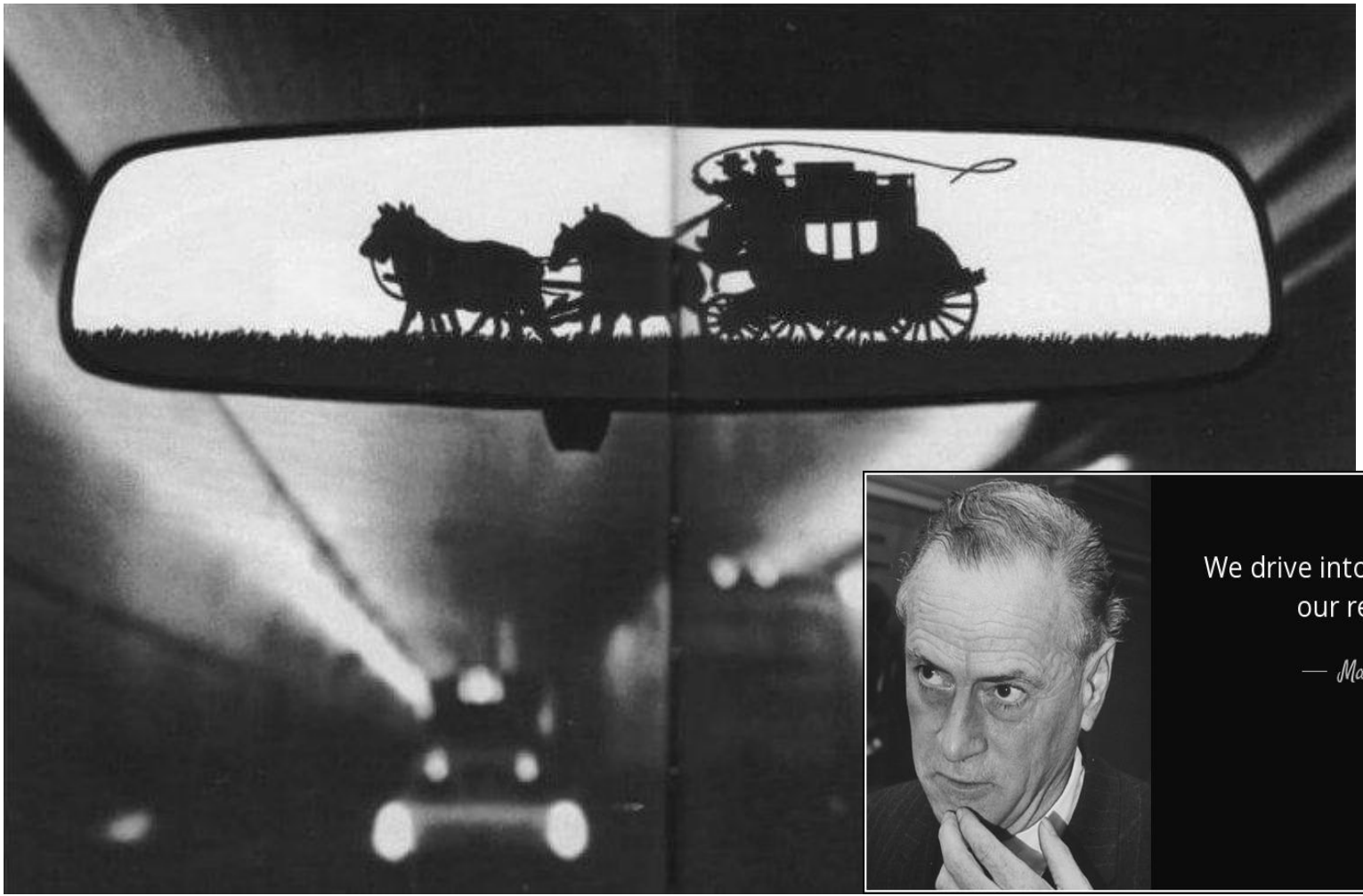
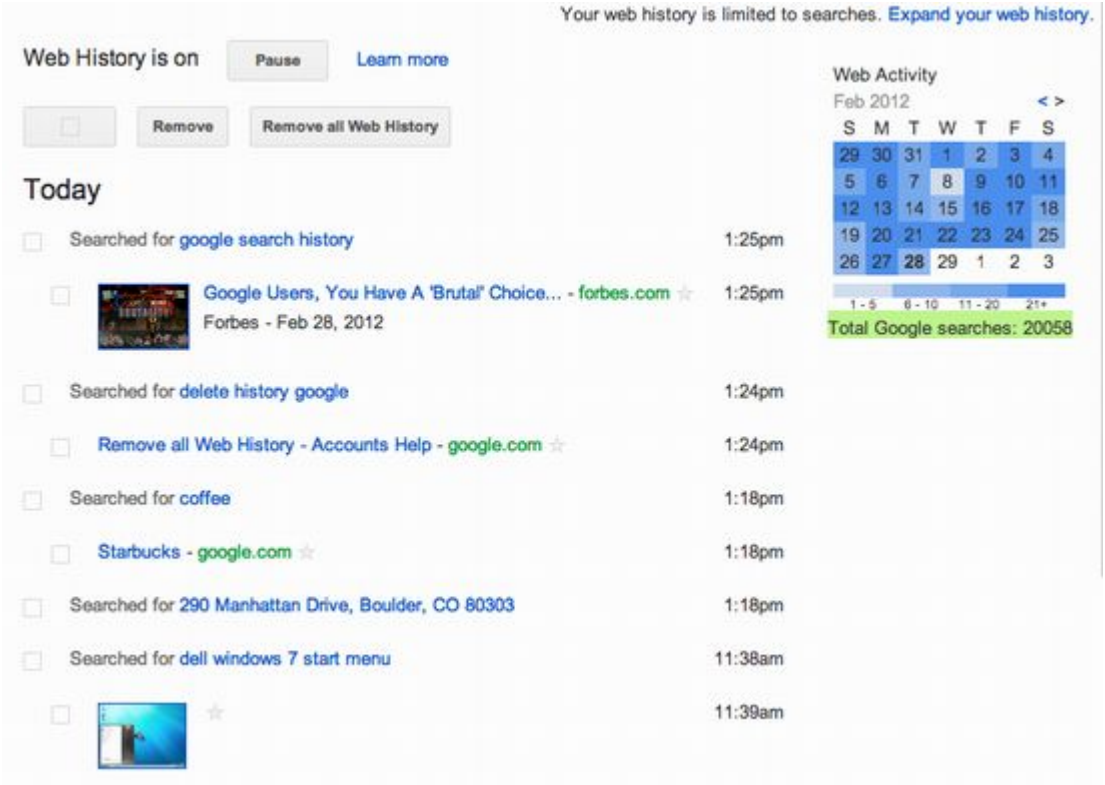


We drive into the future using only our rearview mirror.

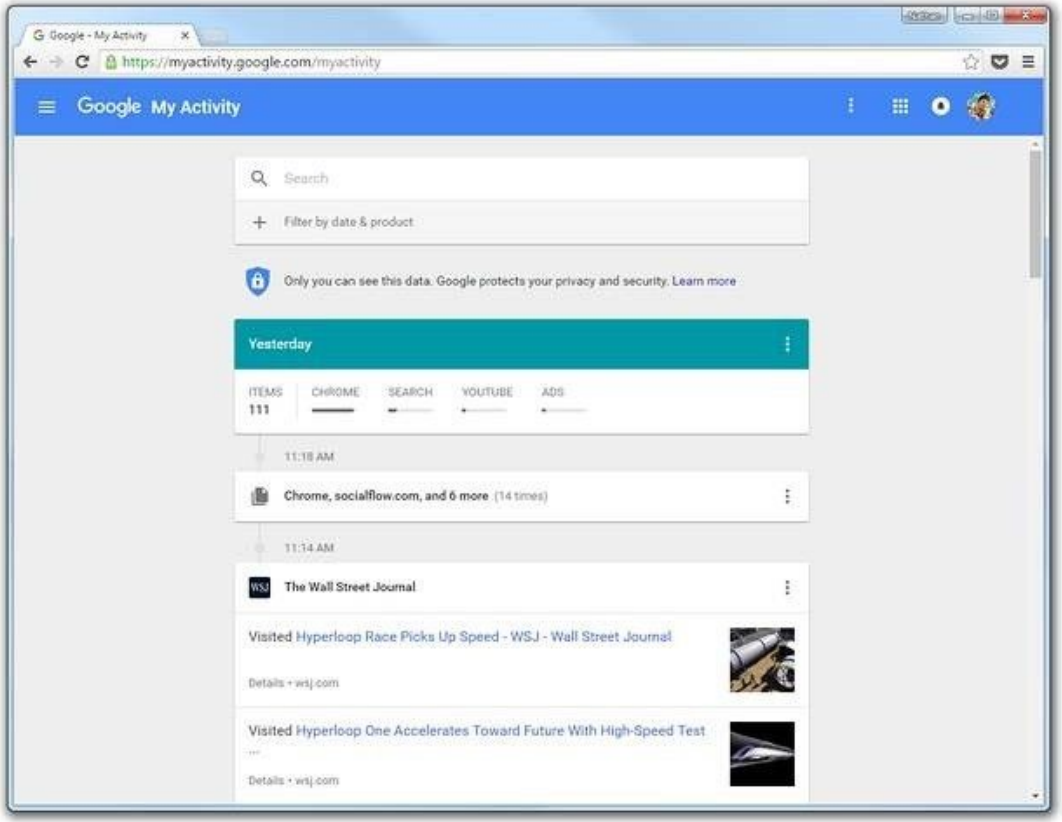
— Marshall McLuhan —

AZ QUOTES



usuario -----> archivo (Google)

--//→ archivo del usuario



myactivity.google.com

Los archivos digitales generan un archivo del usuario:

el archivo digital como la nueva infraestructura de medios que está hecha con “micro-archivos de datos que se usan para posteriores procesamientos” (Ernst, 2015:9)

Google “lee” páginas web y libros según nuestras búsquedas dando resultados basados en algoritmos.

Google

"lectura digital"

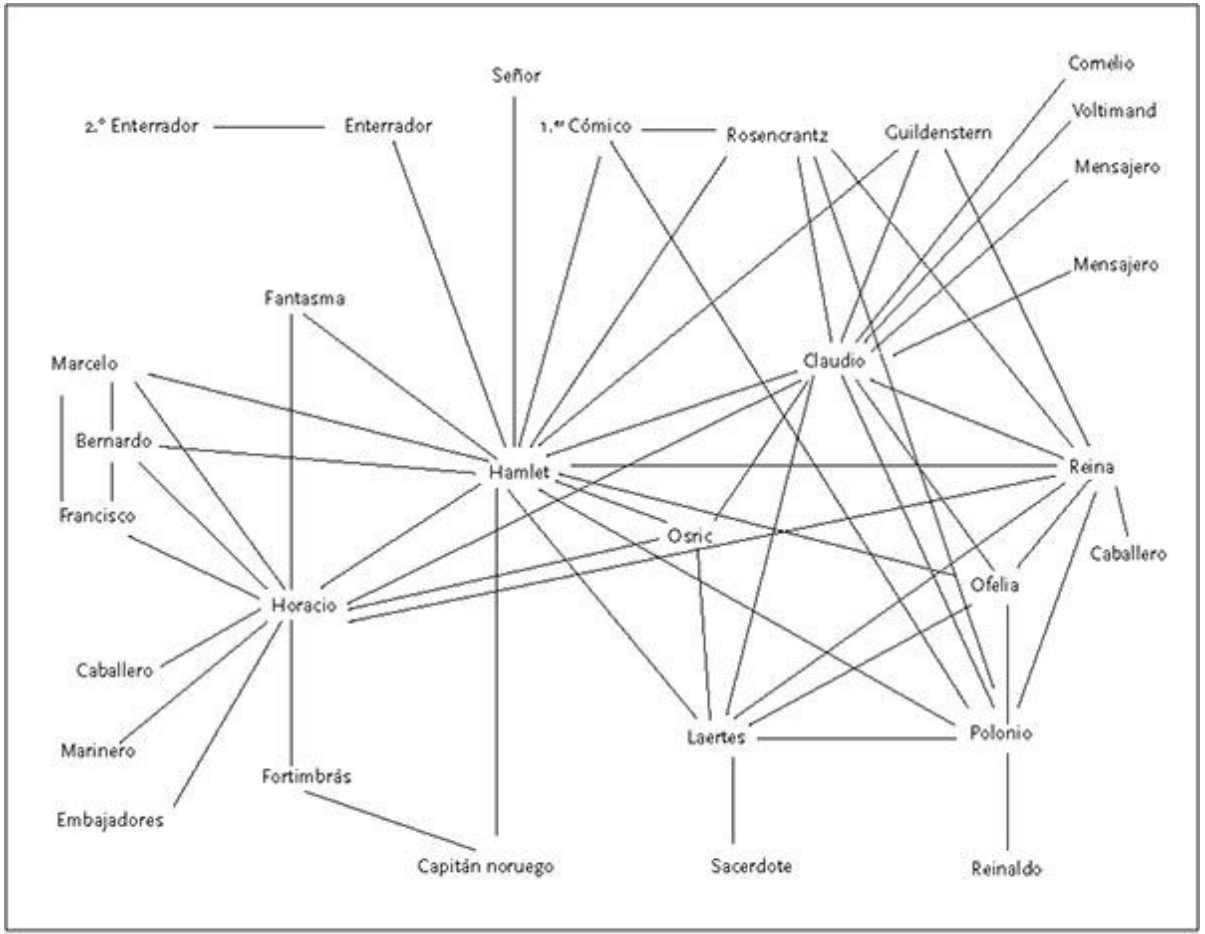
LIBROS VUELOS HERRAMIENTAS DE BÚSQU

Lectura digital infantil: Dispositivos, aplicaciones y contenidos
https://books.google.com.ar/books?isbn...

García-Rodríguez, Araceli, Gómez-Díaz, Raquel - Vista previa
... la literatura infantil y juvenil en cualquier formato. En él se incluyen artículos y estudios sobre la **lectura digital** y la LIJ 2.0. en general.

La lectura digital en el ámbito de la Universidad Veracruzana
https://books.google.com.ar/books?isbn...

Antonia Olivia Jarvio Fernández - 2011 - Vista previa - Más ediciones
Los resultados de la investigación establecen que una mayoría de respuestas (47%), expresa que la **lectura digital** la realiza por partes ...



La red de Hamlet

los gráficos, los mapas y los árboles; objetos diversos, pero que son resultado de un proceso de deliberada *reducción* y *abstracción*

La literatura vista desde lejos - Franco Moretti

Los críticos literarios leen a distancia combinando algoritmos a historia cuantitativa, la geografía y la teoría evolutiva

¡Muchas gracias por su atención!

Daniel Guevel

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